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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,516	02/19/2002	Yoshihisa Yonezawa	YONE3009/EM	3425

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BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314

EXAMINER

DONG, DALEI

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/076,516	Applicant(s) YONEZAWA ET AL.	
	Examiner Dalei Dong	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 March 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 10/076,516.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 18-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method of manufacturing an electron tube, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10/076,516. In response to Applicant's linking claims 23 and 24, these claims are deemed invalid because it was not included in the original presentation of the invention at hand; further, claims 23 and 24 are in the improper form and should be written as independent claims. Also claim 23 is deemed not a linking claim because the Applicant elected Group I which is the product of an electron tube, furthermore, claim 24 is deemed a valid linking claim if and only if the claim which it depends on (claim 1) is an allowable claim. Further yet, the criteria for establishment of restriction is if it can be shown that the product can be made by an entirely different method as claimed by applicant. Examiner already established that the product can be made by an entirely different method, therefore Examiner maintains the restriction requirement.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,982,134 to Aono in view of U.S. Patent No. 5,619,098 to Toki.

Regarding to claims 1-17, Aono discloses in Figure 3, "a cross sectional of an image display device according to a first embodiment of the present invention is shown. In the drawings, reference number 11 designates a conductive wire cathode coated with barium oxide or another material having a thermionic emissions capability; 12a and 12b are insulated support frames positioned on both sides of back electrode 15 and used to support and clamp both ends of wire cathodes 11; 13 is the control electrode used to control the electron beam emitted from the wire cathodes 11 to form the defined image; 14 is the fluorescent material which emits light and displays an image when the electron beam which has passed through the control electrode 13 collides into the fluorescent material 14; 15 is the back electrode, which is installed so that thermions can be easily emitted from the wire cathodes 11; 16a and 16b are the housing; 17a and 17b are the rod-shaped insulated members which determine the height of the wire cathodes 11; and 18 is the spring which applies a load and tension to the wire cathodes 11. For example, insulated support frames 12a and 12b and rod-shaped insulated members 17a and 17b are made of ceramics, back electrode 15, springs 18 and bottom portion 16b of the housing are made of metal, and cover portion 16a of the housing is made of glass" (column 4, line 9-33).

Aono also discloses in Figure 3, "wire cathodes 11 is supported by insulated members 17a and 17b so that the height of wire cathodes 11 is controlled by the diameter of insulated members 17a and 17b positioned on back electrode 15. Thus, a

predetermined distance is provided between wire cathodes 11 and back electrode 15 and also between wire cathodes 11 and control electrode 13" (column 4, line 38-45).

Aono further discloses in Figure 3, "it should be noted that insulated members 17a and 17b are positioned outside the edges of the image display area (specifically fluorescent material 14), and inside of insulated support frames 12a and 12b. Grooves 19 are formed in insulated support frame 12b. Unlike the grooves provided in a conventional flat display device, these grooves 19 do not control both the height and wire cathode pitch, but controls only the wire cathode pitch. As a result, it is sufficient to manufacture the grooves to the required precision for the pitch between the cathode wires only, and manufacturing is therefore easier. Thus, it is not necessary to manufacture the grooves with a depth precision of within several microns. In other words, both the height and cathode pitch are controlled with sufficient precision, but by different means. Specifically, the height of the cathode wires is controlled by clamping the wire cathodes 11 in contact with the insulated members 17a and 17b, and the wire cathode pitch is controlled by the edge of the grooves. Furthermore, as shown in FIG. 4, because the position at which the wire cathodes 11 are clamped is at the face 20 of the spring 18, which is above groove bottom surface 19a, in other words, because wire cathodes 11 are not in contact with groove bottom surface 19a, the height and cathode pitch precision do not become misaligned. Moreover, because wire cathodes 11 are not in contact with groove bottom surface 19 a, the contact resistance can also be reduced. The wire cathodes 11 are suspended and secured with a predetermined tension applied by spring 18. In FIG. 4, reference number 20 shows the position at which the wire cathode 11 is

clamped. The image display device is completed by assembling a control electrode 13 with the back electrode 15 assembled as thus described, and sealing the assembly in housing 16a and 16b" (column 4, line 46-68 to column 5, line 1-12).

However, Aono does not disclose at least one metal film formed on a base. Toki teaches in Figure 8, "The electrode structure C arranged on the anode substrate A includes a spacer frame 9 made of 426 alloy (42% of Ni, 6% of Cr and balance of Fe), and grid electrodes 6 and cathode electrodes 8 each mounted on the spacer frame 9. The spacer frame 9 is integrally provided thereon with lead terminals 7 through which a voltage is applied to the anode electrodes, cathode electrodes and grid electrodes. The cathode electrodes 8 each include a wire made of W or ReW (rhenium-tungsten) and an electron emitting layer made of (Ba, Sr, Ca)O and formed on the wire by electrodeposition. The cathode electrode 8 is fixed at each of both ends thereof to a support 11 comprising a support member and an anchor member welded onto the spacer frame 9" (column 4, line 20-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilize the support member of Toki to hold the cathode filament of Aono in order to steadily and securely held the cathode filament in place and prevent uneven spacing and breakage of the filament and thus eliminating uneven brightness problems causing image defects.

*Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of composition of an electron tube.

U.S. Patent No. 3,745,401 to Stapleton.

U.S. Patent No. 4,788,472 to Katakami.

U.S. Patent No. 5,179,317 to Watanabe.

U.S. Patent No. 5,192,892 to Aono.

U.S. Patent No. 5,204,583 to Jeong.

U.S. Patent No. 5,300,857 to Imai.

U.S. Patent No. 5,424,607 to Jeong.

U.S. Patent No. 5,568,012 to Mohri.

U.S. Patent No. 5,625,254 to Hamada.

U.S. Patent No. 5,811,920 to Wada.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone numbers for the

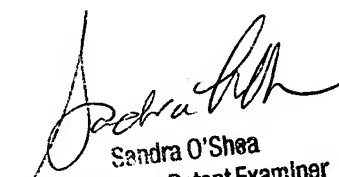
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organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.

March 27, 2003

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800